ABSTRACT

The present invention provides a method and apparatus for acoustic position logging ahead of a drill bit. The method and apparatus comprise a bottomhole assembly (BHA) conveyed on a drilling tubular in a borehole within an earth formation. The BHA has a source array for emitting preselected acoustic signals into the earth formation, and at least one receiver on the BHA for receiving a second acoustic signal produced by an interaction of the preselected acoustic signal with said formation. The source array for acoustic energy may be configured as an axially distributed array of axially or azimuthally directed sources, or an azimuthally distributed array of axially or azimuthally directed sources. The sources may be activated according to preselected time delays. The emitted acoustic signal is differing in spectrum and/or wave mode from the acoustic energy of a rotating drill string.